

men was found among some 50 normal ones, all from Panama. It might be called *R. humboldti* var. *lamarckii*, but is scarcely worth naming. Kiener presumably figured the type (1841-1842, *op. cit.*, p. 84, Pl. 27, fig. 3).

Cerithium pacificum Sowerby, 1834, Genera of Shells, No. 42, Pl. 213, fig. 9 (without locality or description). This is a synonym of the earlier *Rhinocoryne humboldti* (Valenciennes), as Kiener pointed out a century ago. It was based on the typical form, with one row of spines.

16. It has been claimed that both *Cerithidea costata* (da Costa) and *Batillaria minima* (Gmelin) live not only in the Western Atlantic, but also in the Mediterranean, on the coast of Sicily. Aradas and Benoit (1870, *Conehigliologia Viv. Marina Sieilia*, pp. 231-233) report the first as "*Cerithium costatum*," and the second as "*Cerithium erienne*," and believe that both were introduced alive from the Antilles, attached to the bottom of ships. Having seen no Sicilian specimens, I am unable to dispute the identifications. If these were correct, it is more probable that the shells were imported in ship's ballast. That they now occur alive and are acclimatized in Sicily needs confirmation.

THE HABITS OF LIFE OF SOME WEST COAST BIVALVES

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(Concluded from page 113)

3. *On Some Members of the Mytilus californianus Association.* The California mussel certainly is one of the commonest, if not the commonest bivalve of the West Coast. Thanks to a comparatively heavy shell and to strong byssus threads, the species is enabled to maintain itself even in habitats which, because of the heavy surf which beats them, would be uninhabitable for other mollusks. Wharfpiles and cliffs which otherwise would be almost destitute of an epifauna, may have a pad of mussels packed side by side and mostly covering the substratum to invisibility. Other organisms which are not so perfectly protected against the surf action, invariably settle on and between the California mussels

and since the composition of this accompanying fauna is locally rather constant, we are entitled to speak of a well-defined "*Mytilus californianus* association." I have just referred to the species of this association as "locally constant"; this means that within the wide range of *Mytilus californianus*, which is only little affected by varying water temperature, its associated forms vary according to the great difference of the water temperature south and north of Point Conception. Some of these forms accompany the *Mytilus* in almost its whole range, some have their northern limit at Point Conception, while on the other hand, northern species do not occur south of this point.

My own experience deals with only a few members of the *Mytilus californianus* association.

In southern California, the most obvious animal accompanying this association is another mytilid, characterized by a radiating sculpture on its shell. Its correct name is *Brachidontes* (*Hormomya*) *multiformis* Carpenter, but it is mostly quoted in the literature as *Mytilus adamsianus* Dunker or *Mytilus stearnsii* Pilsbry and Raymond; it is not a true *Mytilus*, but has to be placed in the genus *Brachidontes* Swainson, subgenus *Hormomya* Moerch, whose type species is the Atlantic *Mytilus exustus* Lamarck. Intermixed with the *Brachidontes multiformis* in the same association, but generally in much inferior numbers, lives another sculptured mytilid, very similar to *multiformis* in size and shape, but actually very different: *Septifer bifurcatus* Conrad. I found that the two species are very often confounded by the Californian collectors. You will note that in *Brachidontes multiformis* the umbo is only subterminal, very inflated and therefore projecting beyond the ventral margin, while in *Septifer* it is terminal, flatter, and not projecting. The inner surface of the shells exhibits a still more striking difference in the septum from which *Septifer* has its name, which is entirely lacking in *Brachidontes*.

At the present time, only *Brachidontes multiformis* interests us, since it is the host shell of two commensal bivalves of the genus *Lasaea*, *L. cistula* Keen and *L. subviridis* Dall. Both species are rather common at La Jolla, and I found them exclusively on the shell or the byssus of *Brachidontes multiformis*; not a single

specimen lived on *Septifer* or on the much more abundant *Mytilus californianus*! This statement fully agrees with an earlier observation made by Charles R. Oreutt who too, according to a notice on a label in the San Diego Museum, collected lasaeas on *Brachidontes multififormis*. Several lasaeas, however, were detected in dead *Donax*-shells or in cups of *Balanus*, but on these objects, one or several *Brachidontes* had fastened their byssus, so that even in these seemingly aberrant habitats the close relation with this mytilid is maintained.

An association analogous to that of the California mussel, is developed in Peruvian waters, where *Mytilus californianus* is replaced by its close relative *M. magellanicus* Chemnitz and *Brachidontes multififormis* by the almost identical *Brach. granulatus* Hanley. In a thick bunch of a *Mytilus magellanicus* association scraped off from rocks at Chíncha Norte Island, Peru, *Brachidontes granulatus* was represented by a fair number of specimens and on them, and exclusively on them, some lasaeas were found which I have provisionally classified as *Lasaea miliaris* Philippi, though they are practically inseparable from the North American *Lasaea cistula* Keen; the specific name, however, is of no importance relative to the fact that in this Peruvian locality a species of *Lasaea* restricts its habitat to a mytilid which constitutes only a minority among the leading species of the association.

In spite of this supporting case from Peru, the observation made in southern California, that *Lasaea* does not live in close community with the commonest mytilid, but only with an accompanying species, cannot be generalized. North of Point Concepcion, *Brachidontes multififormis* does not occur, its place in the *Mytilus californianus* association being vacant. But both the species of *Lasaea* are found north of Point Concepcion, and at Pacific Grove, the only locality north of this point where I collected, I found them on the shell and on the byssus of the dominant *Mytilus californianus* itself! The only possible explanation of this strange behavior is that while the lasaeas prefer *Brachidontes* to all other host shells, *Mytilus californianus* is a second choice, to which they attach themselves when no *Brachidontes* are available, but the details of their commensalistic relation to these mytilids are still entirely unknown.

For the sake of completeness, it must be mentioned that, at Pacific Grove, I washed out both species of *Lasaea* from fastholds of kelp, where they cannot have led a commensalistic life and where they must have retired for protection only. My failure to detect free living lasaeas in similar habitats at La Jolla by no means proves that they cannot occur there.

NOTES AND NEWS

EXACT DATES OF THE NAUTILUS.—Vol. 55 (1) : pp. 1-36 + i-viii (index and title-pages of vol. 54), pls. 1-2, was mailed July 11, 1941; (2) : 37-72, pls. 3-5, Oct. 24, 1941; (3) : 73-108, pls. 6-7, Jan. 12, 1942; (4) : 109-144, pl. 8, May 7, 1942.—H.B.B.

We are grieved to record the death of FRANK COLLINS BAKER, on May 7th. A notice of his life and work will appear later.

AGRIODESMA.—In the original description of *Pitar felipponei* Dall, 1916 (*Nautilus* 29 (10) p. 113), it is introduced as "*Callo-cardia (Agriodesma) felipponei*, n. sp." The subgeneric name used here has puzzled me for some time. After a check of the literature I came to the conclusion that it is either a typographical error or a slip of the pen on the part of Dall. I believe *Agriopoma* Dall, 1902, was intended. He stated in his remarks that the species *felipponei* is closely allied to *aresta* Dall, which is listed in the 1902 Synopsis under *Agriopoma*. Under present usage the species would be called *Pitar (Pitar) felipponei* (Dall).—R. A. McLEAN.

GONIOBASIS LIVESCENS IN DOUGLAS LAKE, MICHIGAN.—In 1912, 14th Rept. Mich. Acad. Sci. : 209, the original absence of this species was noted, with the hypothesis that it immigrated into nearby lakes from the south after the time of the glacial Lake Algonquin. At the time, the objection was made that this absence might be due to some unknown environmental factor, which rendered Douglas Lake unsuitable for this species. To test this objection, in 1913 two lots of *G. livescens*, from near the north end of the east shore of Burt Lake, were planted, one in North and the other in South Fishtail Bays, near the east end of Douglas Lake. When